PIONEER

LaserMemory

DRM-6324X

CD-ROM CHANGER
CHANGEUR DE CD-ROM
CD-ROM WECHSLER
LETTORE DI CD-ROM
CAMBIADOR DE CD-ROM
CD-ROM換碟器

Mode d'emploi
*Bedienungsanleitung*
Istruzioni per l'uso
Manual de instrucciones
使用說明書

COMPACT
disc
DIGITAL AUDIO

English

Français

Deutsch

Italiano

Español

中國語

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

IMPORTANT NOTICE :

RECORD THE MODEL NUMBER AND SERIAL NUMBER OF THIS EQUIPMENT BELOW.

THE NUMBERS ARE ON THE REAR PANEL.

MODEL NO. DRM-6324X

SERIAL NO.

KEEP THESE NUMBERS FOR FUTURE USE.

IMPORTANT

CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated 'dangerous voltage' within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

CAUTION:
TO PREVENT THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance

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Unit : mm
Unité : mm
Einheit : mm
Unitá : mm
Unidad : mm
單位 : 毫米

210

7.8   349.7   13
370.5

88.3
85

| --- |

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TABLE OF CONTENTS

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INTRODUCTION

Congratulations, you have purchased the most advanced CD-ROM drive in the world!

The Pioneer DRM-6324X Changer can hold up to 6 CD-ROM discs and will play any one on command, a very efficient device when several discs are used. As with CDs, the data on the CD-ROM discs is read by using a semiconductor laser beam. This means that the discs are used in a very stable state with high resistance against flaws and contamination.

Systems configured with a CD-ROM Changer usually include a personal computer, floppy disk drive, a hard disk drive, and a monitor. The Changer is connected to a system through a SCSI type interface. And, as a SCSI device, it can be extended to include a maximum of seven CD-ROM Changers.

This Operating Instructions was written to guide you through a simple and straight forward installation and operation of the product. For best results, we recommend that you review this manual before installing your CD-ROM Changer. In addition to installation instructions, this manual provides specifications, instructions for the care of the unit, and other pertinent information.

So...buckle up for a trip around the world, or universe if you like, the Pioneer Changer will open up vast amounts of information to you through advanced CD-ROM technology.

HOW TO USE THIS MANUAL

The following conventions are used throughout the manual:

Bold Type   Bold lettering is used to emphasize the importance of a statement being made

Italics   Italics are used when indicating a reference to another section in the manua and to emphasize a point.

⚠️   A triangle with an exclamation point is used as a **Warning** symbol. Warnings bring attention to instructions that <u>must</u> be followed exactly.

✓   The check mark is used to note additional and pertinent information regarding an instruction

⚡   The lightning flash with an arrowhead inside a triangle alerts the reader to the risk of electric shock.

✊   The raised hand symbol is used to alert you about proper use or operation of the Changer. Follow the instruction exactly.

✏️   The pencil symbol is used to indicate a helpful **TIP**.

FEATURES

The Pioneer CD-ROM Changer has many distinguishing features including:

6-DISC MAGAZINE (CARTRIDGE)
- ♦ Multi-Disc databases can be contained in a single magazine for fast changing of 6-disc sets.

AUTOMATIC DISC SWITCHING
- ♦ Drive automatically switches discs in seconds.

CD-ROM SECURITY
- ♦ Magazine can be locked into the drive for physical security.

STANDARD DISC FORMATS
- ♦ Conforms to the following CD-ROM standards:

Red Book	**Yellow Book**	**Orange Book**
CD Audio	ISO 9660	CD-Recordable
	High Sierra	
	Rock Ridge	
	CD-ROM XA	
	(Mode 2, Form 1 and 2)	

HIGH-SPEED DATA TRANSFER RATE
- ♦ Speeds equivalent to up to 24x normal are achieved, producing throughput of 1800-3600 Kbytes/second with standard CD-ROM discs.

SCSI 2 SUPPORT
- ♦ Supports SCSI 2 command set for CD-ROM devices.
- ♦ Appears as six logical units under one SCSI ID.
- ♦ Two SCSI ports allow daisy chaining of up to seven devices.
- ♦ Switchable SCSI termination.

AUDIO FUNCTIONS
- ♦ Quality audio output playing standard audio compact discs.
- ♦ Front panel volume control knob *as well as* software volume control.
- ♦ Audio output to headphones or stereo via standard RCA connectors.

SAFETY INSTRUCTIONS

To ensure your personal safety and to maximize the full operating potential of your Changer, read and follow these safety precautions:

POWER - Power-off your system and attached hardware devices before installation.

READ INSTRUCTIONS - Read all safety and operating instructions before the Changer is operated.

RETAIN INSTRUCTIONS - Retain the safety and operating instructions for future reference.

FOLLOW INSTRUCTIONS - Follow all operating and use instructions.

HEED WARNINGS - All warnings must be adhered to.

CLEANING - Unplug this product from the wall outlet before cleaning. **DO NOT** use liquid or aerosol cleaners and only use a damp cloth to clean the exterior housing.

WATER AND MOISTURE - DO NOT use this product near water.

PLACEMENT - DO NOT place the Changer on an unstable surface.

VENTILATION - Slots and openings are provided for ventilation, to ensure reliable operation and to protect it from overheating. These openings must not be blocked or covered. **DO NOT** place this product in a built-in installation unless proper ventilation is provided.

POWER SOURCES - Operate this product from the type of power source indicated on the marking label. If you are not sure of the type of power available, consult your Authorized Pioneer Dealer.

PLUG - This product **MUST BE GROUNDED** and is equipped with a 3-pin grounding type plug. This plug will only fit into a grounding type power outlet and _must_ not be used any other way.

POWER CABLE PROTECTION - When unplugging the power cable, pull on the plug, not on the cable. To prevent an electric short or shock, **DO NOT** handle the cable or plug with wet hands. **DO NOT** allow anything to rest on the power cable and **DO NOT** place the power cable across walkways.

OVERLOADING - DO NOT overload wall outlets and extension cables. Doing so can result in a fire or an electric shock.

OBJECT AND LIQUID ENTRY - Never push objects of any kind into this product. Touching dangerous voltage points may cause a short resulting in a fire or an electric shock. Do not spill liquid of any kind on this product

CONDENSATION - Moisture will form in the operating section of the product causing performance to be impaired if it is brought from cool surroundings into a warmer environment. If you are moving the unit to a location with a warmer temperature, let the product stand for 1-2 hours in the new location before turning it back on.

SERVICING - Do not attempt to repair this product yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel. (Refer to the enclosed Service and Support Card.)

CONNECTIONS - Before making any connections, make sure the power is OFF.
Connect the power cable to the AC outlet on the rear of the unit before connecting the plug to the wall socket.

> ⚠ **RADIO SIGNAL INTERFERENCE** - This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
>
> ⇨ Reorienting or relocate the receiving antenna.
> ⇨ Increasing the separation between the equipment and receiver.
> ⇨ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected .
> ⇨ Consult the dealer or an experienced radio/TV technician for help.
>
> This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
>
> Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

SAFETY INSTRUCTIONS

⚠ **CAUTION** - This product satisfies FCC regulations when shielded cables and connectors are used to connect the unit to other equipment. To prevent electromagnetic interference with electric appliances such as radios and televisions, use shielded cables and connectors for connections.

⚠ **INFORMATION TO USER** - Alteration or modifications carried out without appropriate authorization may invalidate the user's right to operate the equipment.

⚠ **LASER DIODE** - This product contains a laser diode. To assure continued safety, **DO NOT** remove any covers or attompt to gain access to the inside of the product.

CAUTION:
USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

CAUTION:
USE OF OPTICAL INSTRUMENTS WITH THIS PRODUCT WILL INCREASE EYE HAZARD.

IMPORTANT

*A power cord is provided only with units sold on the North American market. In other regions, please consult your dealer for imformation on how to purchase a power cord.
"Use Only Safety Licensed Power Supply Cord."*

A certified power supply cord is to be used with this equipment
For a rated current up to 6 A, a type not lighter than H03VV-F 3G 0.75 mm² or H03VVH2-F 3G 0.75 mm² shall be used.

[For the product bearing the CE mark]

This product complies with the Low Voltage Directive (73/23/EEC), EMC Directives (89/336/EEC, 92/31/EEC) and CE Marking Directive (93/68/EEC).

INSPECTION CHECKLIST

The Pioneer CD-ROM Changer is packaged with the following items:

✓ Pioneer CD-ROM Changer

✓ 2 Pioneer Software Device Driver Disks

    - 1 DOS Installation Disk

    - 1 Macintosh Installation Disk

✓ Power Cable

  Note: In some countries or regions, the shape of the power plug and power outlet may differ, however, the method of connecting and operating the unit is the same.

✓ Operating Instructions

✓ Software Driver Installation Guide

✓ DRM-A600 Magazine (6-Disc CD Cartridge)
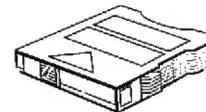
● 6-disc magazine x 1   ● Software device driver disks x 2
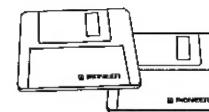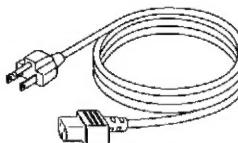
● Power cable for   ● Operating instructions x 1
North America x 1   ● Software Driver Installation Guide x 1

NOTE:
*A power cable is provided only with units sold on the North American market. In order regions, please consult your dealer for imformation on how to purchase a power cable.
"Use Only Safety Licensed Power Cable"*

Figure 1 - Inspection Checklist

If any of these items were not included in the package, contact the dealer you purchased the product from to obtain the missing items or a complete replacement.

A HARDWARE TOUR

Illustrations are provided in this chapter as a visual introduction to the Changer.
Please familiarize yourself with these illustrations and refer to them when necessary to complete the installation and operation of the unit.

Front View
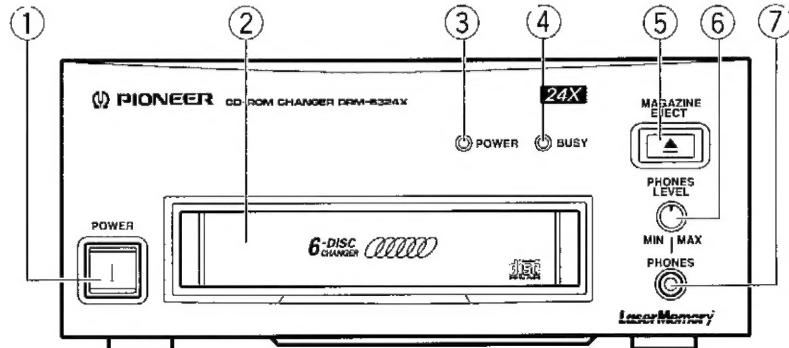
Figure 2 - Front View

① POWER Switch:
Press to turn the power ON/OFF.

② Magazine Insertion Slot:
A front-loading mechanism that makes replacing the magazine simple.

③ POWER Indicator:
Lights up when the power is ON.

④ BUSY Indicator:
Indicates the state of the CD-ROM drive. An orange light comes on when reading CD-ROM data or when accessing the system.

⑤ MAGAZINE EJECT Button:
Press this button when removing the CD-ROM magazine.
Note: *The magazine will not eject if the rear panel FUNCTION Switch #4 is set to the UP/ON disabled position.*

⑥ PHONES LEVEL Controller Knob:
Controls the volume level of the headphones. Volume increases when the knob is turned clockwise and decreases when turned counterclockwise.

⑦ PHONES Jack:
Connect the headphones to this terminal.
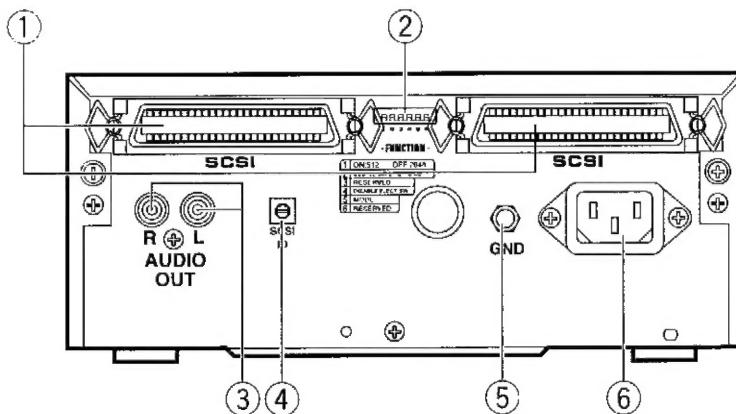
Rear View

Figure 3 - Rear View

① SCSI Connectors:
Either connector may be used to connect to the SCSI connector on the host computer or to other SCSI devices in the SCSI chain.

② FUNCTION Switches:
Used to set the operation mode of the Changer. Turn the power **OFF** to the Changer before changing the operating mode. See page 19 for details.

③ AUDIO OUT Jacks:
Outputs CD audio (Digital CD-DA). Connect it to a stereo amplifier.

④ SCSI ID Selector Dial:
To assign the SCSI ID number, turn the dial clockwise with a screwdriver until the pointed end of the selector points to the number you wish to set. Turn the power to the Changer **OFF** before changing the ID number.

⑤ GND Terminal:
A ground terminal is provided for use when connecting the changer to a stereo amplifier. You should connect a ground wire between both to establish a common ground that will minimize the potential for audio distortion.

⑥ AC IN:
Connect to a wall outlet. The unit is designed to operate at AC 100 - 240V 50/60Hz. (There is no power supply voltage switch because switchover takes place automatically inside the unit.) A power cable is provided only with units sold on the North American market. In order regions, please consult your dealer for imformation on how to purchase a power cable. "Use Only Safety Licensed Power Cable"

INSTALLATION

PRE-INSTALLATION PRECAUTIONS:

This unit contains sensitive, high-precision electronic components and must be protected from shocks and vibrations.

- Select a stable and level location.
- **DO NOT** place any other equipment on the unit.
- **DO NOT** place the unit near a heat source.
- Keep the unit away from high temperatures, humidity, dust, smoke, steam, and water.
- When moving the unit to a warmer location, turn the unit off and place it in the new location for 1-2 hours before turning it back on. This will prevent harmful condensation that affects the ability of the unit to read and process laser beam signals.
- Remove the 6-disc magazine when transporting or shipping the unit.

SETTING THE SCSI ID

- To select a SCSI ID number, turn the dial clockwise with a screwdriver until the "point" on the dial is pointing to the number you are selecting. *See the illustration below.*
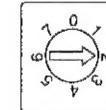
SCSI ID

Figure 4: ID Selector Dial   Figure 5: Screwdriver
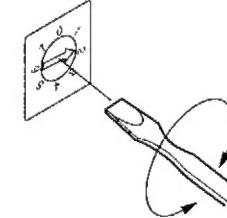
⚠️ **WARNING:**
DO NOT assign SCSI ID number 7 which is normally reserved for the SCSI interface.

✋ **CAUTION:**
You <u>must</u> turn the **Power** to the changer **OFF** before setting the SCSI ID. Doing so will assure your safety <u>and</u> validate the settings.

Tip:
✏️
Make a list of your SCSI devices and their assigned ID numbers to avoid a SCSI ID conflict.

SCSI TERMINATION

SCSI termination is a technique used to absorb line reflections at the beginning and end of a SCSI daisy chain that would otherwise interfere with legitimate SCSI signals and cause errors. To minimize interference with data transfer, SCSI **termination is absolutely required** for proper operation of your Changer.

WHEN TERMINATION IS REQUIRED

If you are installing the Changer as the *only* SCSI device <u>or</u> as the *last* SCSI device in the chain, termination <u>must</u> be enabled.

A built-in terminator switch is located on the rear panel. Function Switch #2 is used to enable or disable termination as described on page 19 (see the following illustration).

ON
1 2 3 4 5 6
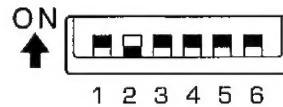
Figure 6 - Function Switch Termination

As you can see Termination Function switch in the above illustration, (Function Switch Termination), your Changer has an **ON/OFF termination** option.

ON : The *Function Switch#2* <u>must</u> be turned to the **ON** position when the Changer is:
  ♦ the *only* SCSI device connected to an interface card; and/or
  ♦ the *last* physical SCSI device in a daisy-chain.

OFF : The Function Switch#2 must be **OFF** when the Changer is:

  ♦ connected in the *middle* of a SCSI chain

✓ Figure 10 on page 22 illustrates the Changer as the *only* SCSI device, Figure 11 on page 23 as the *middle* SCSI device, and Figure 12 on page 24 as the *last* SCSI device.

⚠ **WARNING:**
Because the Changer has built-in termination, **DO NOT** put an external terminator cap on the open SCSI connector.

SETTING FUNCTION (DIP) SWITCHES

Function Switches, also known as DIP Switches and Jumper Switches, control the operational functions of the CD-ROM Changer. Moving the switch up turns it ON, and moving it down turns it OFF.
All switches have been factory set in the DOWN/OFF position. The following explanations of the FUNCTION SWITCHES will aid you in determining the proper settings for your Changer.

ON
1 2 3 4 5 6
FUNCTION
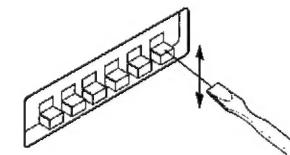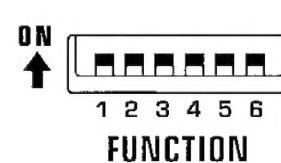
Figure 7 - Function Switches

SWITCH SETTING TABLE

Switch 1 - Default Sector Size
Set the default sector size for the Changer when the drive is ON.
ON - 512-byte sector size (required for <u>some</u> UNIX systems)
OFF - 2048-byte (2K) sector size (factory default setting)
For *both* PC and Macintosh systems, the recommended setting is OFF. To confirm which sector size should be used in your system, refer to your system documentation.

Switch 2 - SCSI Terminator
The built-in switch which enables or disables SCSI termination.
ON - SCSI termination enabled.
OFF - SCSI termination disabled.

Note:
This information is described in detail earlier in this chapter under <u>SCSI Termination</u> on page 17.

Switch 3 - Reserved
<u>MUST BE</u> SET TO **OFF**

Switch 4 - Disable EJECT Switch
Specifies if the power is ON to the front panel EJECT switch.
ON - Disables the EJECT switch.
OFF - Enables the EJECT switch.

Switch 5 - Operating Mode
Use to select the operating mode for the device used (changer and CD-ROM)
ON - Operates as a single CD-ROM device, and as changer device.
OFF - Operates as six CD-ROM devices (default).
Set to this position when using the accessory CD-ROM drive software.
- The selection of which mode to use is dependent on the software device driver you use. Consult the operating instructions for your software when making this selection.

Switch 6 - Reserved
MUST BE SET TO **OFF**

Tip:	Application:	Library
	User's:	General Public
	Recommendation	Turn switch to the **ON** (Disable) position to ensure security and to reduce the risk of damage to the discs.

CONNECTING THE CHANGER

VERIFY CABLES
- Make sure you have the correct cables to make the installation.
- **DO NOT** connect any cables at this time.
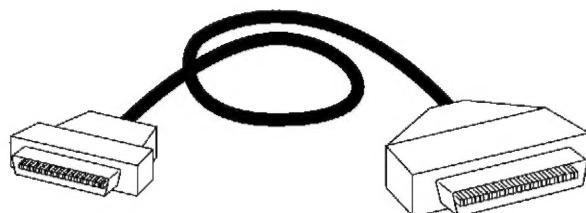
Figure 8 - SCSI Cable Packaged with Pioneer Interface Kits

✓ If you purchase a Pioneer Interface Kit, a SCSI cable will be provided. Kit information is given on page 34. The cable provided will have a 25-pin male connector at one end and a 50-pin male *Centronics* connector at the other end as shown in Figure 8.

CABLE DO'S:
To guarantee secure cable connections between devices, fasten the interlocking wire clips or screws on the connector ends.

✏️ **Tip**: Use shielded cables when connecting this equipment to other devices.

CABLE DON'TS:

- **DO NOT mistake the parallel port for the SCSI connector.**
  The 25-pin SCSI connector is the same connector used for parallel printer output on many systems. **DO NOT** connect your changer to the parallel port.
- **DO NOT leave the power on.**
  If you daisy chain the Changer to other SCSI devices, the system, and all of the devices, must be powered-off before connecting the cable.
- **DO NOT** use a cable that exceeds a total length of six (6) meters or 19.7 feet in combined cable length among all the devices connected to the SCSI interface.

CABLE CONFIGURATIONS:
The Changer can be connected to the computer using one of the following cable configurations.
- Connecting the Changer as the *only* SCSI device.
- Connecting the Changer in the *middle* of a SCSI chain.
- Connecting the Changer as the *last* SCSI device.

⚠️ **WARNING:**
Power **OFF** the Changer, *all* external SCSI devices, and your computer before connecting the SCSI cable(s).

INSTALLATION

Before making or changing the connections, switch off the power switch and disconnect the power cord from the AC outlet.

CONNECTION DIAGRAM

① PC/Rear View   ② SCSI Cable   ③ Pioneer Changer/Rear View
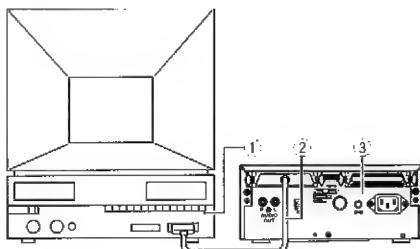
Figure 9 - PC System

CONNECTING THE CHANGER AS THE *ONLY* SCSI DEVICE

Follow these steps to connect your Changer as the *only* external SCSI device:

1. Turn the power **OFF** to your system and *all* external SCSI devices.
2. Set an unused SCSI ID number.
3. Turn the **terminator switch ON**.
4. Attach the SCSI cable to the SCSI interface port at the rear of the computer.
5. Attach the 50-pin male Centronics connector (the "other" end of the SCSI cable) to the back of the Changer.
6. Connect the power cable into the Changer and to a power outlet.
7. Power **ON** your Changer, all external SCSI devices, and your computer.
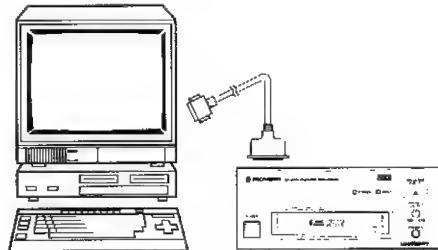
Figure 10 - *Only* SCSI Device

INSTALLATION

CONNECTING THE CHANGER IN THE *MIDDLE* OF A SCSI CHAIN

The figure below shows a typical installation with the Changer in the *middle* of a SCSI chain. To connect the Changer, use a SCSI cable that has a 50-pin male Centronics connector on the end that connects to the Changer. The connector on the other end of the cable must match the SCSI connector on the computer. Follow these steps to connect the Changer in the *middle* of a SCSI chain:

1. Turn the power **OFF** to your system and *all* external SCSI devices.
2. Set an unused SCSI ID number.
3. Turn the **terminator switch OFF.**
4. Disconnect the SCSI cable going into the device that will follow the Changer in the chain.
5. Attach the connector you are holding to the appropriate connector at the rear of the Changer.
6. Connect a SCSI interface cable between the Changer and the device that now follows it in the SCSI chain.
7. Connect the power cable into the Changer and to a power outlet.
8. Power **ON** the Changer, all external SCSI devices, and your computer system.
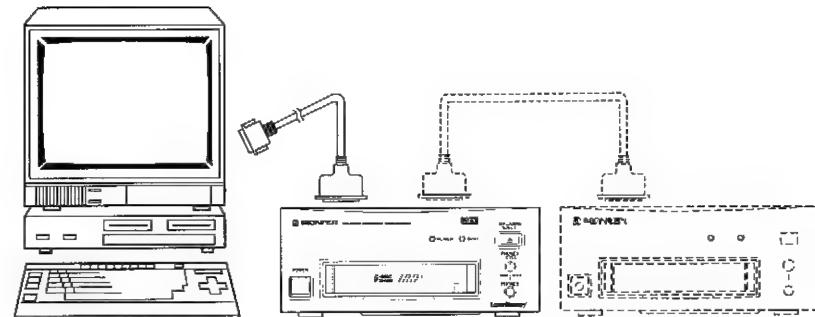
Figure 11 - *Middle* SCSI Device

INSTALLATION

CONNECTING THE CHANGER AS THE *LAST* SCSI DEVICE

The figure below shows a typical installation with the Changer at the end of the SCSI chain. To connect the Changer, use a SCSI cable that has a 50-pin male Centronics connector on the end that connects to the Changer. The connector on the other end of the cable must match the SCSI connector on the computer. Follow these steps to connect the Changer as the *last* SCSI device:

1. Turn the power **OFF** to your system and *all* external SCSI devices.
2. Set an unused SCSI ID number.
3. Turn the last Changer's **terminator switch ON** (enabled) and make sure that all the devices in the middle of the chain have termination disabled (OFF).
4. Attach the SCSI cable to the SCSI port on the computer and to the SCSI port on Changer #1. Then, attach a SCSI interface cable to the SCSI port on Changer #1 and to a SCSI port on Changer #2.
5. Connect the power cable into the Changer and to a power outlet.
6. Power **ON** the Changer, all external SCSI devices, and your computer
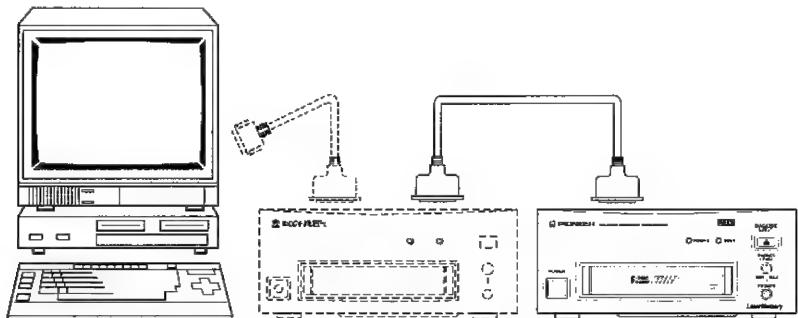
Figure 12-The *Last* SCSI Device

CHANGER OPERATION

By the time you reach the end of this Chapter you will have put your Changer to the test. Before you proceed to the four steps to begin a CD-ROM session, there are a few things you should know about the care, handling, and use of the magazine and your CD-ROM discs. Let's start with the magazine:

THE MAGAZINE AND ITS FUNCTIONS

The Magazine resembles a cartridge and can hold up to 6 CD-ROM discs.
One magazine is packaged with the Changer but additional magazines can be purchased through your Authorized Pioneer Dealer. See page 34 for information.
For instructions on how to use and care and for the magazine and the discs it uses, please read the information in this section carefully:
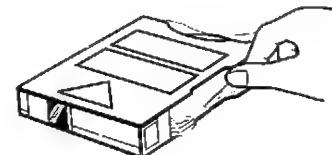
Figure13 - The Magaazine

CAUTIONS Regarding Handling of Magazines:

- 8-cm CDs cannot be used with this magazine.
- CD-ROM discs cannot be placed into the Changer without the magazine.
- **DO NOT** touch the recorded surface of discs (the shiny side).
- Discs must be inserted label side ↓ **down** ↓ and shiny side up
- **DO NOT** place anything other than discs in the disc tray
- Insert discs into disc trays one tray at a time.
- Close one tray before opening another tray.
- **DO NOT** drop or hit magazines.
- **DO NOT** take magazines apart.
- **DO NOT** use the magazine with an 8-cm CD adapter.
- **DO NOT** use volatile liquids to clean the magazine surface.
- **DO** slide the magazine into the slot with a straight, easy push
- Insert the correct end of the magazine into the magazine slot.
- After use, store magazines in the case provided.
- Store magazines in a cool place away from sunlight.
- Magazine will wear out with use, and should be replaced after about 5,000 operations per tray.

CAUTION Regarding Transporting the Changer:

Never transport or ship the Pioneer CD-ROM Changer with the magazine inserted. The optical heads will not be locked and will be susceptible to crashing. **Remove** the magazine before transporting or shipping the unit.

LABELING THE MAGAZINE

When affixing the supplied labels, apply them to the positions specified below:
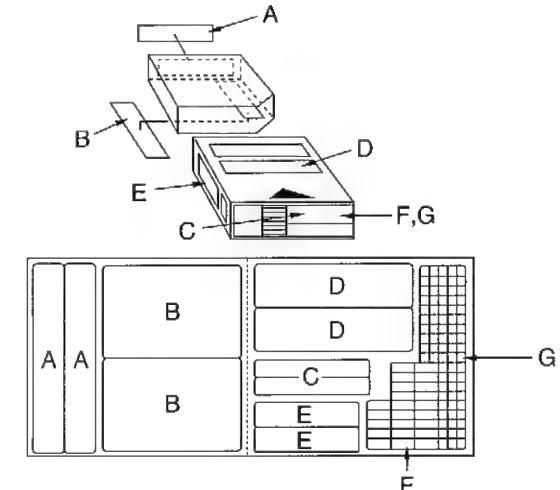
Figure14 - Magazine Labeling

- Each label can be conveniently used as follows:
  A: Titles
  B: Names of stored discs and tracks
  C: Titles
  D: Names of stored discs
  E, F, G, : Classification

- **DO NOT** put new labels on top of old labels. The exceptions are F and G can be placed over C

CAUTION: If labels are not placed in the designated positions, the magazine and player may not operate correctly.

CD-ROM DISC INFORMATION/FORMATS SUPPORTED

● High Sierra, CD-ROM XA, (Mode 2, Form 1 and 2), Rock Ridge and, CD-DA Audio discs.

MEDIA DIAMETER

120mm/12cm/4.72" *only*.

HANDLING OF CD-ROM DISCS

● When holding discs, **DO NOT** touch the data surfaces (the shiny side of the disc). Hold the disc by the edges or by one edge and the center hole.
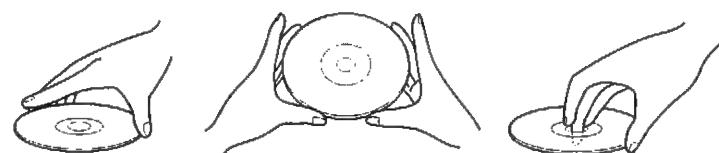
Figure15 - Disc Handling

● **DO NOT** affix labels or adhesive tape to either side of the discs. Also **DO NOT** scratch or damage the label

DO NOT use damaged, cracked, or warped discs. If they break inside the unit, they may damage the optics. Discs rotate at high speed inside the changing mechanism.

INSERTING DISCS INTO THE MAGAZINE

Because the Changer has a front-loading magazine slot, inserting discs is easy. To insert discs into the magazine, follow these steps:

Step 1   Open a disc tray (open one at a time) by placing your thumb on the outer tab and pushing the tray out in a counterclockwise direction.
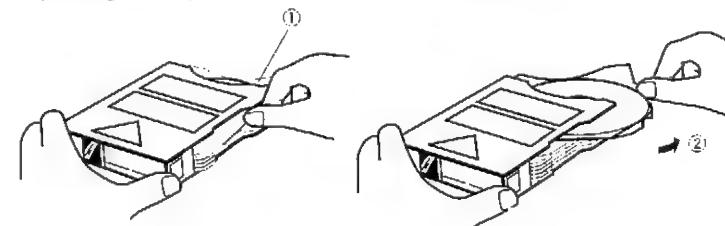
Figure16

Step 2   Place a CD-ROM or CD-Audio disc **label side ↓ down ↓**, shiny side up in the tray.

The label side should face downwards.
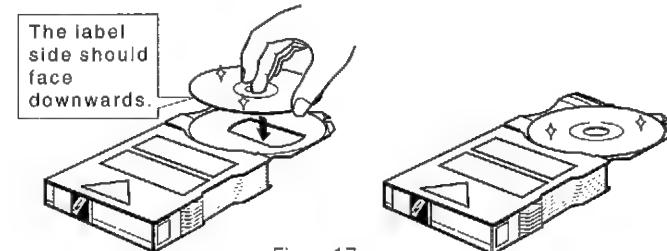
Figure17

Step 3   With your index finger on the disc tray tab, swing the tray back into the magazine.
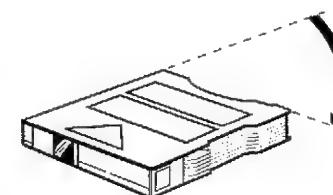
Figure18

Repeat these steps until you have inserted each disc into the magazine. Insert the magazine into the Changer

⚠ **WARNING:**
Discs **must** be placed in the disc tray **label side ↓ down ↓**, shiny side up.

BASIC OPERATING STEPS

✓ **Note:** Operation of the Changer requires that software drivers and other files be installed on your computer. Instructions for installing the software drivers are outlined in the Software Driver Installation Guide. However, we recommend you read the Operating Instructions and complete the hardware installation before installing the software.

Operating the Changer is easy and straight forward. The basic steps for operating the "hardware" are listed below.

To Begin a CD-ROM session:

Step 1   Turn the power **ON** to your Changer.
Step 2   Turn the power **ON** to your computer system.
Step 3   Insert the CD-ROM magazine into the Changer making sure that the direction of insertion is correct.
Step 4   Use your computer to select the disc you want to use.

To End a CD-ROM session:

Step 1   Exit from the software program.
Step 2   Turn the power **OFF** to your computer.
Step 3   Turn the power **OFF** to your Changer.

USING THE AUDIO FEATURES

The Changer can handle up to six CD-Audio/CD-ROM discs. Specifically, the audio features of the Pioneer CD-ROM Changer include:

♦   Plays standard audio compact discs.
♦   Allows independent Left/Right audio control using digital attenuation (computerized and menu-driven volume control).
♦   Provides standard audio output with headphone and RCA connectors.
♦   Conforms to Red Book CD-ROM standards.

The drive automatically detects audio tracks and plays them at 1X speed. The drives fully support mixed-mode discs and will automatically identify data and transfer it at 24X speed.

AUDIO OUT jacks:

The **AUDIO OUT jacks** output CD audio for use with a stereo amplifier or powered speakers. To connect the Changer to an audio device, plug Standard **RCA** connectors into the jacks as illustrated below.
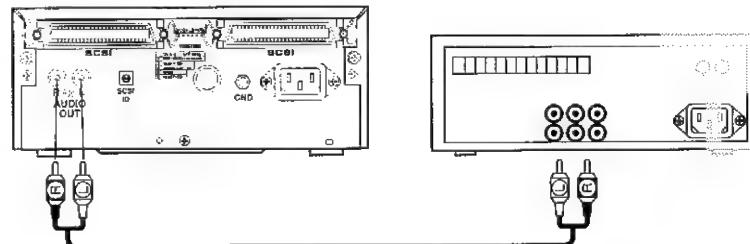

Figure 19 - Changer Connected to a Stereo Amplifier

USING THE HEADPHONE FEATURE

To use the Changer with headphones, push the headphone connector into the terminal headphone jack (**PHONES Jack**) located in the lower right corner on the front panel of the Changer. Refer to Figure 20 below.

PHONES LEVEL:
The **Volume Knob** controls the volume level of the headphones. Volume increases when the knob is turned clockwise and decreases when it is turned counterclockwise.
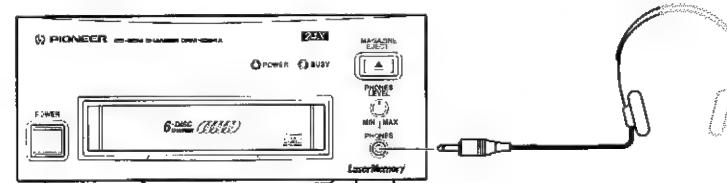
Figure 20 - Headphone Connection

TROUBLESHOOTING

Incorrect operations are often mistaken for trouble and malfunctions. If you think that there is something wrong with this unit, check the points below according to the symptom.

Power indicator does not light up:
- Is the AC power cable correctly connected?
- Is the power switch turned ON?

If your computer did not start up correctly because the initial diagnostics did not recognize a SCSI device, check these items:
- Were all of your SCSI devices plugged in and turned on before you started your computer? The Changer *and* all of the SCSI devices in the daisy chain <u>must</u> be turned on <u>before</u> you start your computer.
- Are your cables connected properly? All cables **must** be attached to the correct ports.
- Are your SCSI IDs set properly? Each device on a SCSI chain must have a unique SCSI ID.
- Have you set termination properly? If the Changer is the **only** SCSI device or the **last** SCSI device in a SCSI chain, it **must** be terminated.
- Have you installed the software driver properly that came with your Changer? *If you have not installed the software device drivers yet, refer to the Software Driver Installation Guide.*

If data cannot be read from the CD-ROM disc:
- Is the disc placed in the tray properly with the **label side ↓ Down ↓** and shiny side up?
- Is the *BUSY* indicator light on? (Shown in Figure 2 on page 15.)
- Is the disc in proper operating condition?
- Is the SCSI cable connected correctly to the interface card and/or other SCSI devices?
- Are you sure there is a disc in the tray (drive) you are trying to access?

If music cannot be played back:
- Are you sure an Audio CD is being used?
- Is the audio amplifier, powered speakers, or headphone set connected?
- Are you using CD-DA Audio? Some audio formats require an audio sound card in the computer to decode digital Audio CD-DA.
- Are you operating the changer that is **not** connected to a SCSI 2 interface card? Bringing digital audio from the CD-ROM disc into the computer requires a SCSI 2 interface card.
- Is the volume turned high enough?

Magazine cannot be removed:
- Has the *Function Switch* for the EJECT button been pushed to the UP/ON disabled position? Function Switch #4. If yes, move the switch to the OFF/DOWN position

PLACEMENT, CARE, AND CLEANING

CLEANING THE MAGAZINE

- Clean the magazine with a soft dry cloth. If it becomes dirty, wipe the dirt away gently with <u>a soft cloth soaked in water with a few drops of *mild* detergent and wrung out *very well*.</u> If there is any moisture on the unit after cleaning, dry it off with another soft, dry cloth. Let the magazine cartridge air dry thoroughly before inserting discs or placing it in the Changer.

CLEANING DISCS

- Fingerprints or smudges on the surface of the disc will not directly affect the recorded signals. However, data might not be read properly because of reduced brightness of the light reflected from the data surfaces. Clean discs by wiping them gently with a soft cloth from the inner edge toward the outer perimeter.
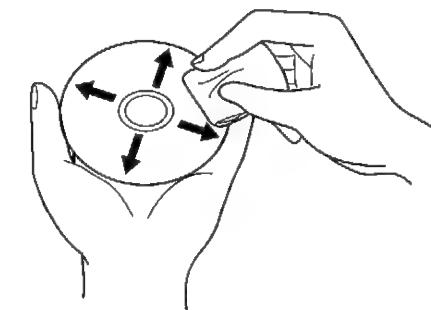

Figure 21 - Disc Cleaning

- If a disc becomes very dirty, wipe the dirt away gently with a <u>soft, slightly damp</u>, cloth. The disc <u>must</u> be completely dry before placing it in the magazine.
- **DO NOT** use record cleaning sprays or antistatic agents on discs.
- **DO NOT** clean discs with benzene, thinner, or other volatile solvents.

PARTS AND ACCESSORY ORDERING

To order parts and accessories for your Changer, contact your Authorized Pioneer Dealer. Below is a list of the "recommended" Pioneer Interface Kits. The table below provides information about the most commonly requested accessories:

INTERFACE KITS:

IBM PC/XT/386 8-Bit Interface Card (Host Adapter) Kit
* **Pioneer** recommends the following Interface Card Kit:
  Part Number FDM-PC8 that includes a Future Domain Interface card, SCSI cable, and Installation Instruction Manual.

IBM PC/AT/386 16-Bit Interface Card (Host Adapter) Kit:
* **Pioneer** recommends the following Interface Card Kit:
  Part Number FDM-PC16 that includes a Future Domain Interface Card, SCSI cable, and Installation Instruction Manual.

PS/2 Microchannel 16-Bit Interface Card (Host Adapter) Kit:
* **Pioneer** recommends the following Interface Card Kit:
  Part Number FDM-PS16 that includes a Future Domain Interface Card, SCSI cable, and Installation Instruction Manual.

MISCELLANEOUS PARTS AND ACCESSORIES:

Description	Part Number
Six-disc Magazine	DRM-A600
SCSI Daisy Chain Cable	PCA-02
Macintosh SCSI Cable	PCA-03
SUN UNIX CD-ROM Interface Software	CD-SOL

APPENDIX A : SPECIFICATIONS

[General]

Disc .... CD-ROM disc (conforming to YELLOW BOOK)
CD audio disc (conforming to RED BOOK)
Data capacity .... 3.2 Gigabytes (540 megabytes/disc)
Data sector size .... 2048/512 bytes/sector
Data transmission speed .... 1800 - 3600 kilobytes/sec*
Interface .... SCSI 2
Buffer memory ....128 kilobytes
Average access time .... 75 ms
* Data throughoutput may performance drop when disc rotation speed is reduced as the result of vibration detection, or if your computer does not support high-speed data throughput.

[Audio output]

Frequency response (17 Hz to 20 kHz) .... ± 2 dB
Signal-to-Noise ratio ....Min. 70 dB
Total harmonic distortion ....Less than 0.3 %
Output level .... 1.7 Vrms ± 0.5 V (LINE OUT)

[Accessories]

Power cable 1
Six CD-ROM disc magazine 1
Floppy disks (CD-ROM disc drive software) 2
Software Driver Installation Guide 1
Operating Instructions 1

NOTE:
A power cable is provided only with units sold on the North American market. In order regions, please consult your dealer for imformation on how to purchase a power cable. "Use Only Safety Licensed Power Cable"

[Others]

Power voltage .... AC 100V-240V, 50/60Hz
(automatic select)
Power consumption ....AC 120V, 0.20A
/AC 240V, 0.22A
Dimensions .... 210 (W) x 88.3 (H) x 370.5 (D) mm
8-9/32 (W) x 3-15/32 (H) x 14-19/32 (D) in.
Weight .... 3.5 kg (7 lb 12 oz)
Operating temperature .... + 5 to +35°C (+ 41°F to + 104°F)
Operating humidity .... 10 to 80 %
Storage temperature ....– 20 to + 60°C (– 9 to + 140°F)
Built-in terminators

NOTE:
Specifications and design subject to possible modifications without notice due to improvements.

AC Power Cable The cable that connects the Changer to the AC wall outlet.

Adapter Card See Interface Card.

ASPI **A**dvanced **S**CSI **P**rogramming **I**nterface. An ASPI driver is a software interface between a SCSI device and an interface card, translating the peculiarities of a particular manufacturer's hardware into a standard interface protocol.

ASPI Manager Provides a standard software interface to the interface card.
Pioneer device driver software includes an ASPI driver that, when used with an ASPI Manager, establishes a compatibility between the Changer and any manufacturer's ASPI compatible SCSI interface card.

Asynchronous A form of data transmission in which information is sent one character at a time with variable time intervals between characters.

Audio Out Jacks Output CD audio when connected to a stereo amplifier or powered speakers.

AUTOEXEC.BAT is a DOS file name. This file is executed each time you start your computer and contains instructions that tell your computer which programs to load automatically and the PATH (directories) where these programs can be found. The directory information for the device driver software that runs the Changer is written into your AUTOEXEC.BAT file during software driver installation.

Boot Drive The drive on a computer that contains the startup instructions for the system.

Built-In Connector refers to a computer system that has a SCSI interface on the system board. Macintosh systems, for example, have a built-in SCSI interface.

Cable Connector is the connector found at each end of a cable for connection to a computer or device.

CD Cartridge refers to the "magazine" that holds 6 CD-ROM discs and slips into the Changer.

CD-ROM - **C**ompact **D**isc **R**ead-**O**nly **M**emory is a form of high capacity storage (roughly 660 megabytes) that uses laser optics rather than magnetic means for reading data.

CD-ROM Disc A CD-ROM Disc is a round, flat piece of nonmagnetic, shiny metal encased in a plastic coating. Some discs are designed to be "read from" only in a CD-ROM drive. CD-ROM discs have an approximate capacity of 660 Megabytes and a diameter of 12cm.

CD-ROM Drive A computer peripheral reading device that uses compact disc technology.

Centronics A standard for parallel data exchange between computers and peripheral devices, originally developed by the printer manufacturer Centronics, Inc. The Pioneer Changer uses a SCSI cable with a 50-pin male Centronics connector at one end.

Changer is an abbreviated term used as a synonym for the Minichanger. A changer holds one or more CD-ROM discs and operates like a "juke box" changer.

Click is a term that means to quickly press and release the left button on an IBM PC or compatible computer mouse and the main button on a Macintosh mouse.
During the Pioneer software installation, this action is used to make a selection from a Windows "Drop-Down Menu."

CONFIG.SYS is a DOS file name. The CONFIG.SYS file is your system configuration file that is executed each time you start your computer. It tells your computer which devices to run such as a MOUSE or a CD-ROM Changer.

Controller is a device upon which other devices rely for access to a computer system.

Daisy Chain Seven SCSI devices can be connected to each other in a series and can be installed internally (inside your computer), externally (outside your computer), or both. This linking of one device to another creates a daisy chain.

Device Driver A software interface that allows communication between a computer system and a peripheral device.

DIP switch - **D**ual **I**n-line **P**ackage - See Jumper Switch.

Disc - See CD-ROM Disc.

Disc Tray The magazine-type cartridge used by the Pioneer Changers contain 6 individual swing-out disc trays. Each tray holds one CD-ROM disc.

Disk Drive is a device that can read from and write to disks. There are three common types of drives currently available in computer systems, CD-ROM drives, floppy disk drives, and hard disk drives.

DMA - **D**irect **M**emory **A**ccess - A technique that speeds up access to memory for expansion cards.

DOS - **D**isk **O**perating **S**ystem - A term often used generically to describe an operating system that is loaded from disks when a computer system is started or rebooted.

DOS Boot Drive The drive that contains the operating system and support files that load into memory when the computer is turned on.

Double Click is a term that means to quickly press and release the left mouse button twice. During the Pioneer software installation, this action is used to make a selection from an installation menu.

Drive See "Disk Drive."

Drive Letter is the naming convention used on computer systems to indicate each disk drive. When installing the Pioneer Software, for example, you will most likely establish a directory on Drive Letter "**C**." The floppy disk that contains the software drivers you will install will be inserted into drive "**A**" or drive "**B**."
Pioneer CD-ROM drives access 6 additional drive letters representing the 6 CD-ROM discs in the Changer.

Drivers are software interfaces that allow communication between a computer system and an interface card

EJECT Button Located on the front of the Changer, the EJECT button releases the magazine for inserting or removing CD-ROM discs.

Expansion Slot is a socket inside a computer system designed to hold expansion boards (interface cards) and connect them to the system.

External SCSI Device The Pioneer Changer is an external SCSI device. That means it can stand alone outside a computer system and is connected to the system using a SCSI cable and a SCSI interface card.

Floppy Disk A 3.5 inch or 5.25 inch disk that stores data. The floppy disks referred to in this manual contain the software device drivers that are required for a computer system to communicate with a Pioneer Changer. In order for this communication process to take place, a hardware device called an interface card must be used.

Function Switch The Function Switches are located on the rear panel of the Changer and set the operation mode of the Changer. Moving the switch up turns it ON, moving it down turns it OFF. Function Switches are also known as DIP switches and Jumper Switches.

Hard Drive See "Disk Drive."

Host Adapter Also called an interface card. This adapter enables the computer to use a peripheral device for which the computer does not already have the necessary connections. A host adapter acts as an interface between a peripheral device such as the Pioneer CD-ROM drive and a computer system by providing the necessary connector port.

Icon A small graphic image displayed on the screen to represent a program application or utility. **Double clicking an Icon** will launch (activate) the program or utility thus saving the user from having to manually type in the necessary commands.

Interface Card Also called a host adapter. An interface card enables the computer to use a peripheral device for which the computer does not already have the necessary connections. The card acts as an interface between a peripheral device such as the Pioneer CD-ROM drive and a computer system by providing the necessary connector port.

Internal SCSI Device A SCSI device that is housed internally in a computer system such as a Macintosh hard disk drive.

IRQ - **I**nterrupt **Re**Quest - IRQs are used by hardware to notify your PC's CPU (Central Processing Unit) that some service is needed. If IRQs were not used, the CPU would have to wait for the completion of the current hardware activity before it could move to another task.

Jumper Switch A rocker-type switch that can be set to one of two positions, ON/OFF, to control options on the circuit board.

Kbyte Abbreviation for kilobyte or one thousand twenty-four bytes. Also abbreviated KB or K.

Last SCSI Device The final or last device in a SCSI daisy chain.

Logical Unit Numbers See LUNs.
LUNs The SCSI host adapter you connect your Changer to must support multiple LUNs (Logical Unit Numbers). LUNs are an address assignment subset of a SCSI ID that defines separate volumes within one SCSI ID number. Example: Your Changer may have the SCSI ID number zero (0) with each of the six CD-ROM discs recognized as a separate drive letter assignment of D through I*. *Most* interface cards do recognize multiple LUNs, but we recommend you check the documentation that accompanied your adapter to verify this.

Magazine The Magazine resembles a cartridge and can hold up to 6 CD-ROM 12-cm discs, each on an individual tray, with a total capacity of 4 Gigabytes per magazine.

Magazine Slot The opening on the front of the Changer through which the magazine cartridge is inserted and removed. This front-loading mechanism makes replacing the magazine simple.

Middle SCSI Device A SCSI device placed between other SCSI devices in a daisy chain.

Changer A Pioneer 6-disc CD-ROM device that can handle up to 6 CD-ROM discs. Often referred to as a CD-ROM changer.

Mixed-Mode CD-ROM discs are very similar to audio compact discs except they also contain data. These discs will play in a normal audio player but the result will be noise unless there is audio recorded along with the data on the CD-ROM disc.

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*The actual drive letter assignment will vary depending on the configuration of your system. Drive letters D through I are used in this definition as an example only.

Mouse A pointing device commonly used with Macintosh Systems or on a PC running Microsoft Windows or Windows compatible software products. A mouse can be used to make menu selections when installing the Changer device driver software but is **not required**.

Mnemonic A shortened word used as a memory aid to associate a lengthy piece of information with something simple and easy to remember. Example: The DOS command *dir* refers to the word "directory" which is a request for a list of files. Mnemonics are used as "menu-selection terms" in the Pioneer installation screens.

Multimedia Refers to the use of more than one medium of communication used concurrently on a computer system. Example: Pioneer Changers can play multimedia CD-ROM discs that may contain graphics, text, and sound.

Only SCSI Device The only SCSI device connected to a SCSI interface in a daisy chain.

Operating System A term describing the software responsible for controlling the allocation and usage of hardware resources such as memory, CPU time, disk space, and peripheral devices. The operating system is the foundation on which applications are built.

PATH Command is a DOS command that is used in the AUTOEXEC.BAT file to tell DOS which directories to search when accessing program application files.

Peripheral Devices are typically considered supplementary but not essential additions to a computer system. Peripheral devices include disk drives, printers, modems, CD-ROM changers, and other similar devices.

Power Indicator The light on the front of the Pioneer CD-ROM Changer that indicates whether or not the power is ON to the unit.

Powered Speakers a.k.a. Amplified Speakers are speakers which have a built-in amplifier. By connecting the RCA connectors which are included with the changer to powered or amplified speakers, you can listen to audio CDs.

RAM - **R**andom **A**ccess **M**emory - RAM is an acronym and is generally understood to refer to volatile memory that goes away when a computer system is turned off.

RCA Connectors The connector ends of a cable connecting an audio changer mechanism (CD-ROM) and an output device such as stereo equipment or powered speakers. RCA connectors are included with Pioneer CD-ROM drives.

Reboot A term that means to restart your computer to reload the operating system. Rebooting is recommended after installing the Pioneer device driver software so that the new information that was recorded in your AUTOEXEC.BAT and CONFIG.SYS files will take effect. You can perform what is called a "warm or soft boot" by pressing the [CTL+ALT+DEL] keys (in that order) and then releasing them.

SCSI - **S**mall **C**omputer **S**ystem **I**nterface - A SCSI interface is used to connect microcomputers to peripheral devices such as a CD-ROM changer. Up to seven devices, not including the computer, can be attached through a single SCSI connection through sequential connections called a daisy chain. Each device _must_ have its own unique address (ID number). Only one device at a time can transmit through the interface card and priority is given to the device with the highest ID number. A built-in SCSI interface connector is standard on some computers (Macintosh for example) and can be installed in other computers.

SCSI Connector is the "connector end" of an interface card that enables the computer to make use of a peripheral device that was not included as part of the original computer system.

SCSI Cable A SCSI cable connects a SCSI interface to a SCSI peripheral device.

SCSI Chain See "Daisy Chain."

SCSI Device SCSI devices can be internal to your computer system, external, or both. SCSI devices can include disk drives, printers, modems, CD-ROM changers, and other similar devices.

SCSI ID A SCSI device _must_ be identified by a SCSI ID number from 0 through 7 with ID #7 typically reserved for the SCSI interface card.

SCSI 2 (II) Because the original SCSI specification did not take into account the rapid enhancements to technology, SCSI 2 was developed. The enhancements include faster throughput of data on the SCSI bus, minimal seek times, and audio capability. **Note:** The DRM-6S24X supports the SCSI 2 command set.

SCSI Termination is a technique used to absorb line reflections at the beginning and end of a SCSI daisy chain that would otherwise interfere with legitimate SCSI signals and cause errors. For this reason, SCSI **termination is absolutely required** for proper operation of your CD-ROM device to minimize interference with data transfer.

Synchronous Transfer of data in which the information is transmitted in blocks of bits separated by equal time intervals.

Termination Pioneer Changers are equipped with a built-in termination switch. The _only_ SCSI device and the _last_ SCSI device in a SCSI chain _must_ be terminated.

Termination Power A 5-Volt signal (termination power) _must be_ supplied by at least one SCSI device to the SCSI bus. SCSI devices in a SCSI chain _must be_ set to accept termination power by enabling/disabling the terminator switch properly.